

Computer Science and Engineering

Bachelor



25%
Software
Engineering

20%
Fundamental
Computer Science

20%
Data Science

15%
Mathematics

10%
Computer
Systems

10%
Academic
Skills

Using social media to map disasters, making friendly healthcare-robots and recognising objects in images. In the Computer Science and Engineering (CSE) degree programme at TU Delft, you will learn the theory and practice of developing software and processing data for the intelligent systems of today and the future.

Admission requirements	VVO N&T N&G/E&M/C&M with Math B Non-Dutch: see site
Language	English
Intake of first-year students from 2019/2020:	500, due to Numerus Fixus Deadline 2019/2020: Jan 15th 2019
BSA in 2016-2017*	60%
Numerus Fixus	Yes
40 hours / study week	
10 hours	Lectures
12 hours	Group work
18 hours	Self-study

What does the degree programme look like?

The programme consists of a mixture of lectures, practical assignments, group projects and a considerable amount of self-study. Each quarter in the first year consists of three courses: a fundamental course, a more applied course and a practical course, such as a project. You will learn how to analyse and design computer systems and their underlying algorithms. You will also study the subject of computability theory, addressing such questions as: what is computing, what can computers do and what not, and how can you describe machines in a mathematical way? Artificial intelligence, computer graphics, data mining and image processing are also part of the programme. Furthermore, you will learn about the underlying principles of programming languages, data structures, software quality,

how to model complex systems and how users interact with such systems. You will learn to solve problems systematically. Artificial intelligence, computer graphics, data mining and image processing are also part of the programme. In addition, you will regularly collaborate with other students on projects.

What will you learn?

In the first year, you will take a compulsory combination of courses. This is divided into about 40% fundamental computer science, 30% mathematics and 30% computer science skills.

The courses include among others:

- **Computer Organisation:** You will learn how the individual components of a computer form a working machine. This course teaches you the low-level mechanisms involved in making hardware and software work together.

* % of students who get a positive BSA

Computer Science and Engineering

- **Object-Oriented Programming:** You will learn the basics of programming. At the end of this course, you will be able to develop various applications.
- **Calculus:** This course builds on Mathematics B, but the pace is much faster and the level much more in-depth. You will learn the mathematics that is necessary to understand Probability and Statistics.

In the third quarter, you will work together on a project, for example to develop an application to help illiterate people.

The second year consists of compulsory courses and electives. You may choose from three variant blocks, each comprising three

courses. Within the variants, you e.g. learn how to automatically recognise license plate numbers, how to program embedded software and how to process and analyse large amounts of data in the cloud.

As part of the curriculum, you will work in a small team with fellow students on a large software project, developing software for an external stakeholder to tackle a socially relevant issue. Examples of such projects include programming a drone that can independently survey a commercial greenhouse or developing a scheduling application for a hospital.

You will start your third year with a minor, which is aimed at broadening your knowledge

or preparing you for a Master's programme. It is also possible to do the minor at a different university in the Netherlands or abroad.

The degree programme is rounded off with the Research Project. This project is carried out independently at TU Delft or at a company and involves research into a subject related to computer science. For example, this could involve implementing a new algorithm, and the necessary experimental tools to evaluate it against existing alternatives.

Are you interested? Join information events like open days, online trial studying or student for a day.

What competencies do you need to have?

- Affinity with mathematics
- Highly motivated
- Perseverance
- Ability for abstract thinking



500
CSE bachelor
students
from 2019 on

Potential employers:

- Google
- Exact
- KPMG
- ASML
- ING
- Booking.com
- TNO
- Consultancy agency
- Own company



30%
mathematics
in the first year

Possible Master's programmes:

- Computer Science
- Data Science and Technology
- Software Technology
- Embedded Systems

87%
of the bachelor
students will
start a master's
programme



Skills that you will acquire:

- Intelligently analyse and tackle complex problem environments
- Collaborate in teams and with end users
- Design and develop robust, high-quality software
- Quantify how good an algorithmic problem solution is



Potential jobs:

- Software engineer
- Data scientist
- Security analyst
- Systems analyst
- Consultant
- Researcher
- Entrepreneur